

## C7. CHAPTER 7

### COST ESTIMATING PROCEDURES

#### C7.1. OVERVIEW

##### C7.1.1. General.

C7.1.1.1. As previously stated, the objectives of reports management are to ensure that needed information is provided to Agency officials at the right time, in the best format, and at the lowest possible cost. As in managing any project, it is necessary to know the costs associated with an information requirement.

C7.1.1.2. Management needs cost estimate information to determine if the expected value of the information is worth the cost of collecting it. The costing methods provided in this chapter are used to compute the costs for the collection of information. They are used for estimating DoD internal, interagency, and public information requirements.

C7.1.1.3. Each Component shall maintain supporting documentation and cost estimating worksheets for all information requirements. Supporting documentation and worksheets for all cost estimates must be available for GSA review. GSA review may include the appropriateness of the costing method selected by the agency. Information requirement cost data shall be updated every three years upon reinstatement of the information requirement or whenever a substantial change in the information requirement occurs.

##### C7.1.2. Scope.

The costing methods defined in this chapter apply to DoD costs associated with satisfying DoD public information, DoD internal and interagency requirements. These methods describe the preparation of routine cost estimates only. Full cost/benefit analyses are not addressed in this Manual.

#### C7.2. COSTING ALTERNATIVES

Cost estimates are needed for management to determine if the expected value of the information is worth the cost of obtaining it. OSD Components shall select the most appropriate costing alternative and costing method for preparation of the reporting cost estimates.

C7.2.1. Pilot Testing. Pilot testing estimates are based on actual costs collected. Pilot testing estimates shall be used for high-cost reporting networks, full-scale automated systems, databases containing a large number of data elements, new data collection systems, or when respondent costs are needed for budget purposes.

C7.2.2. Factoring. Factoring estimates are based on actual costs previously collected for a comparable report. Factoring estimates shall be used when there is medium to low-cost reporting, the estimate is based on a revision to or reinstatement of a previously estimated report, there is a high degree of experience with comparable reports made by the same (one or a limited number) of responding agencies, or the costs are easily compared with actual costs for a similar information collection by an experienced estimator.

C7.2.3. Sampling. Sampling estimates are based on a representative selection of responding Agencies. Sampling shall be used when there is low to high-cost reporting, a large number of respondents, or new reports.

C7.2.4. Technical Estimates. Technical estimates are estimates based on experience. Technical estimates shall be used when there is low-cost reporting, more detailed costing waived by GSA, one-time reports, or a limited number of respondents.

### C7.3. COSTING ACCURACY

C7.3.1. The importance of the cost estimate to management shall have a direct relation to the degree of accuracy required in preparing the estimate.

C7.3.2. Management normally is more concerned with the accuracy of cost estimates in the case of a high-cost, recurring report than in the case of a relatively low-cost, one-time report. When the benefits of a report are not clearly and substantially greater than probable costs, greater precision is necessary in order to permit a valid cost to benefit evaluation.

### C7.4. COSTING METHODS

C7.4.1. Routine Cost Estimate. DoD public information, internal, and interagency information requirements require cost estimates to be prepared using the appropriate costing alternatives and accuracy levels described in the previous two sections. The procedures of this chapter address the preparation of routine cost estimates.

C7.4.2. Full Cost/Benefit Analysis. If an information collection or system is considered to be "major" by the CIO or Representative of the DoD Component sponsoring the reporting activity, a full cost/benefit analysis, instead of a routine cost estimate, is required. DoD Instruction 7041.3 (reference (ab)), or other appropriate guidance, shall be followed in the development of the full cost/benefit analysis. The procedures for performing these analyses are quite broad, vary considerably among components, and are not covered in this Manual.

#### C7.5. EXCLUDED COSTS

There are two kinds of costs that should be excluded when estimating the costs of a reporting system:

C7.5.1. Feeder reports when the feeder can exist without the reporting system; and

C7.5.2. Reports that are integral to an organization's function and that would continue if the reporting requirement did not exist.

#### C7.6. COST ESTIMATING PROCEDURES

The steps required to develop a cost estimate are as follows:

C7.6.1. Use Optional Form (OF) 101, "Summary Worksheet for Estimating Reporting Costs," (See figure C7.F1.) to consolidate the cost data.

C7.6.2. Collect the cost data using one or more of the costing alternatives described in paragraph C7.2., above.

C7.6.3. Group the cost data by the following reporting activities (developmental, operational, and user). Occasionally, not all of these activities will apply and in some cases additional activities may be necessary.

C7.6.3.1. Developmental activity is work on new reports or modification of existing reports. Modifications made to feeder reports should be included in the developmental costs.

C7.6.3.2. Operational activity is on-going work, such as data collection, processing, and transmission.

C7.6.3.3. User activity is work performed by the office that imposed the information requirement. It includes activities such as reviewing, refining, analyzing, and documenting.

C7.6.4. Categorize the cost data by the following types of resources used (direct personnel costs; overhead costs; direct equipment, materials and supplies costs; and other direct costs). Explanations for each are as follows:

C7.6.4.1. Direct personnel costs are the costs of labor used in the reporting activity plus the cost of fringe benefits. Labor cost is computed by multiplying the hourly rate of the personnel doing the job by the number of hours on the activity. To determine the hourly rate, divide the employee's annual salary by 2,087 which is the standard number of working hours in a year. Fringe benefit costs are computed by multiplying a fringe benefit factor by the cost of labor. A fringe benefit factor can be provided by the component's budget office. Alternatively, a factor of 0.26 (26 percent) may be used.

C7.6.4.2. Overhead costs are the direct personnel costs multiplied by an overhead rate for the office. This rate typically runs from 25 to 100 percent. If the overhead rate is known, it may be used directly, and paragraph C7.7.2., below applies. Otherwise, the overhead rate should be computed as follows:

C7.6.4.2.1. Compute the total overhead (i.e., indirect cost) by summing the cost of salaries and fringe benefits for supervisory, clerical, and technical personnel, supplies, space, utilities, telephone, and other common items. Ensure that only those costs which apply to internal organizational activities (i.e., overhead operations) are included and not production activities. Do not include in this computation that portion of supervisory, clerical, and personnel salaries and fringe benefits that are involved in the direct production (direct costs).

C7.6.4.2.2. Compute the direct mission cost by subtracting the total overhead cost from the office's total annual budget.

C7.6.4.2.3. Compute the overhead rate by dividing the total overhead cost by the direct mission cost. For example, if the overhead cost including salaries, fringe benefits, supplies, space and utilities is \$100,000 and the office's annual budget is \$250,000, then the mission cost is the annual budget less the overhead cost which is \$150,000. The overhead rate then would be the total overhead cost divided by the direct mission cost ( $\$100,000 / \$150,000$ ) resulting in an overhead rate of 0.67. If the total direct personnel cost for this reporting activity is \$10,000, then the overhead for this reporting activity cost would be \$6,700 ( $\$10,000 \times 0.67$ ).

C7.6.4.3. Direct equipment, material, and supply costs include the actual cost of equipment directly applied to the information requirement and all associated material and supply costs which can be attributed directly to the requirement.

C7.6.4.3.1. Equipment costs include acquisition, maintenance, transportation, and installation. To compute the equipment costs, prorate its actual cost over all its uses and amortize this cost over the equipment's life expectancy. For example, if a computer costs \$100,000 and 10 percent of the time it is used for the information requirement at hand, the prorated cost would be \$10,000. Assuming the expected life of the computer is five years, for example, the annual amortized cost would be \$2,000.

C7.6.4.3.2. Direct material and supply costs are the actual costs of these items used for the information requirement being estimated. Examples are paper, ribbons, forms, and other items.

C7.6.4.4. Other direct costs are costs other than direct equipment, material, and supply costs. These costs consist of purchased services or activities for which fees are charged. Enter the cost information on the OF 101 and calculate the developmental costs (Item 5(f)), Operational Costs for One Report (Item 9(f)), Annual Operational Costs (Item 10(f)), User Costs for One Report (Item 13(f)), and Annual User Costs (Item 14(f)).

#### C7.7. SAMPLE COST ESTIMATE

The purpose of this section is to present a complete example of a cost estimate prepared for a new reporting system. It utilizes the OF 101, "Summary Worksheet for Estimating Reporting Costs," and implements the costing methods described in paragraph C7.4., above. For this example, assume that there is one report per year. If there are four reports per year, for example, the cost elements in "Operational Costs" (Columns (a) through (e) of the OF 101) and "User Costs" (Columns (a) through (e) of the OF 101) are each divided by four.

C7.7.1. Hourly Rate. Given the sample GS grade and salary data as shown below, compute the average hourly labor rate for each GS grade involved in the development of the reporting activity.

<u>GS Grade</u>	<u>Salary</u>	<u>Hourly Rate</u>
13/1	\$51,003	\$24.52
12/1	42,890	20.62
7/1	24,178	11.62

C7.7.2. Direct Personnel Costs (Column (a), OF 101). Using the rates determined in the preceding step, and the estimated labor hours by GS grade to accomplish the development, operational, and user activities associated with the reporting activity, and a fringe benefit factor of 26 percent, compute the direct personnel costs and enter them in the appropriate items under Column (a) of the OF 101.

			<u>Labor</u> <u>Hours</u>		<u>Fringe</u> <u>Benefit</u>		<u>Hourly</u> <u>Rate</u>		<u>Total</u> <u>Cost</u>
<b>Developmental Costs</b>									
Specification	GS 13	8 hrs	x	1.26	x	\$24.52	=	\$	247.16
	GS 12	1 hr	x	1.26	x	\$20.62	=	\$	25.98
									\$ 273.14
Analysis	GS 13	16 hrs	x	1.26	x	\$24.52	=	\$	494.32
Design	GS 12	16 hrs	x	1.26	x	\$20.62	=	\$	415.69
Installation	GS 12	40 hrs	x	1.26	x	\$20.62	=	\$	1039.24
<b>Operational Costs</b>									
Data Collection	GS 7	4 hrs	x	1.26	x	\$11.62	=	\$	58.56
Data Processing	GS 12	2 hrs	x	1.26	x	\$20.62	=	\$	69.22
<b>User Costs</b>									
Analyzing	GS 12	16 hrs	x	1.26	x	\$20.62	=	\$	415.69
Presenting	GS 13	40 hrs	x	1.26	x	\$24.52	=	\$	1235.80
Documenting	GS 7	8 hrs	x	1.26	x	\$11.62	=	\$	117.12
									\$1352.92

C7.7.3. Total Overhead Cost. If an overhead rate for the organizations involved in the reporting activity are not available, one must be computed. The first step in making such a computation is to total all overhead costs. Using the example data below, the total overhead costs are found to be \$1,286,000 as follows:

<u>Items</u>	<u>Overhead Costs</u>
Salary and Fringe Benefits	
Supervisory	\$770,000
Clerical/Technical	180,000
Supplies	145,000
Telephone and Common Items	98,000
Space and Utilities	<u>93,000</u>
Total Overhead Costs	\$1,286,000

C7.7.4. Total Mission Cost. To arrive at mission cost, subtract overhead costs from the budget of the organizations involved in the reporting activity. Using the example data below, the mission cost is found to be \$1,948,000.

Total Budget	\$3,234,000
Total Overhead Cost	<u>-1,286,000</u>
Total Mission Costs	\$1,948,000

C7.7.5. Overall Overhead Rate. The overhead rate would thus be computed as follows:

$$\$1,286,000 / \$1,948,000 = 0.66$$

C7.7.6. Specific Overhead Costs (Column (b), OF 101). The overhead calculations for the OF 101 are obtained by taking the direct personnel costs found in paragraph C7.7.2., above, and multiplying them by the overhead rate (0.66 in the example). The calculations are as follows:

<u>Development Cost</u>	<u>Overhead Cost</u>
Specification	(\$ 273.14 x 0.66) = \$ 180.27
Analysis	(\$ 494.32 x 0.66) = \$ 326.25
Design	(\$ 415.69 x 0.66) = \$ 274.36
Installation	(\$1039.24 x 0.66) = \$ 685.90
<u>Operational Cost</u>	
Data Collection	(\$ 58.56 x 0.66) = \$ 38.65
Data Processing	(\$ 69.22 x 0.66) = \$ 45.69
<u>User Cost</u>	
Analyzing	(\$ 415.69 x 0.66) = \$ 274.36
Presenting	(\$ 235.80 x 0.66) = \$ 815.63
Documenting	(\$ 117.12 x 0.66) = \$ 77.30
	<u>\$ 892.93</u>

These figures can now be entered into Column (b) of the OF 101.

C7.7.7. Direct Equipment Costs (Column (c) of OF 101). Assume there is a computer with associated peripherals that will be used 20 percent of the total available time on the machine during the development of the reporting system that will take less than one year to accomplish. During the operational phase of reporting, 10 percent of the total time available on the computer shall be used by the reporting activity being estimated on the OF 101. The equipment was purchased for \$95,000 two years ago, has three years of useful life remaining, and has \$1,000

annual maintenance costs. Compute the equipment costs as follows:

Annual Amortized Computer Cost	=	\$95,000 / 5	=	\$19,000
Annual Computer Maintenance			=	\$ 1,000
Total Annual Computer Cost			=	\$20,000

Prorated Cost of Development	=	\$20,000 x .2	=	\$ 4,000
Prorated Annual Operating Costs	=	\$20,000 x .1	=	\$ 2,000

The entry would be \$4,000 in Item 4(c) of the OF 101 and \$2,000 in Item 7(c).

C7.7.8. Direct Material Costs (Column (d), OF 101). Assume that \$1,000 worth of pre-printed forms must be purchased each year to accomplish the data collection. Enter \$1,000 in Item 6(d) of the OF 101.

C7.7.9. Other Direct Costs (Column (e), OF 101). Assume that a contractor was hired to do the design and installation of the reporting system and these costs were \$67,000 and \$43,000, respectively. In addition, a contractor is paid \$48,000 per annum to do the data collection. Enter \$67,000 and \$43,000 in Items 3(e) and 4(e), respectively, and \$48,000 into Item 6(e).

C7.7.10. Final Totals. Determine the total costs in Items 5, 9, and 13 of the OF 101 by adding the appropriate entries in Column (f). Compute Items 10 and 14 by multiplying Items 9 and 13 by the number of reports per year.

C7.7.11. Sample OF 101. A completed OF 101 based on the foregoing example is shown in Figure C7.F1.

#### C7.8. OTHER METHODS

Any forms, methods, or shortcuts which DoD Components may devise in documenting information requirements are likely to be acceptable routine cost estimates if they adhere to the following standards:

C7.8.1. Developmental, operational, and user costs and related reporting activities are considered;

C7.8.2. Accepted sampling methods are used;

C7.8.3. The full range of resources expended in reporting are included in estimates of reporting costs (i.e., personnel, overhead, materiel, equipment, and others);



C7.8.4. Estimates of reporting costs are based on the resources required to be consumed in the reporting system being estimated rather than upon the net additional resources required by an organization in the reporting;

C7.8.5. Estimates of personnel costs include the salary of an employee's non-productive time as well as their productive time and also includes the costs to the Government for insurance and retirement plans;

C7.8.6. Estimates of the equipment costs of reporting are based on a pro rata share with other uses made of the equipment;

C7.8.7. Certain basic work operations of an organization and certain feeder reports, while essential to a particular reporting requirement, are independent reports in the sense that they would continue to exist even if the information requirement were to be discontinued. Such independent operations and feeder reports are excluded from the estimated costs of the reporting requirement; and

C7.8.8. Shortcuts for estimating reporting costs may be used to reduce the expense of estimating if they provide an adequate degree of reliability, validity, and accuracy.

SUMMARY WORKSHEET FOR ESTIMATING REPORTING COSTS										
REPORT SYMBOL DD-DA&M(AR)0001	REPORT TITLE Documentation and Licensing of Information Requirements of the Department of Defense	ESTIMATE PREPARED BY J. White	DATE 980731							
FACTORS		COSTS (\$)								
REPORTING CATEGORIES	REPORTING ACTIVITIES	DIRECT PERSONNEL (a)	OVERHEAD (66 % of column (a)) (b)	DIRECT EQUIPMENT (c)	DIRECT MATERIAL (d)	OTHER DIRECT COSTS (e)	TOTAL (a+b+c+d+e) (f)			
DEVELOPMENTAL COSTS	1. Specification of Reporting Requirement	273.14	180.27	0.00	0.00	0.00	453.41			
	2. Analysis of Reporting Requirement	494.32	326.25	0.00	0.00	0.00	820.57			
	3. Design of Reporting System	415.69	274.36	0.00	0.00	0.00	690.05			
	4. Installation of Reporting System	1,039.24	685.90	4,000.00	0.00	43,000.00	48,725.14			
	5. DEVELOPMENTAL COSTS	(Add totals in Column f)								50,689.17
OPERATIONAL COSTS	6. Data Collection	58.56	38.65	0.00	1,000.00	48,000.00	49,097.21			
	7. Data Processing	69.22	45.69	2,000.00	0.00	0.00	2,114.91			
	8. Data Transmission	0.00	0.00	0.00	0.00	0.00	0.00			
	9. OPERATIONAL COSTS FOR ONE REPORT	(Add totals in Column f)								51,212.11
10. ANNUAL OPERATIONAL COSTS		(Costs for one report multiplied by frequency per year)								51,615.86
USER COSTS	11. Refining, Interpreting, and Analyzing Information Received	415.69	274.36	0.00	0.00	0.00	690.05			
	12. Reading, Reviewing, Discussing, and Documenting Information Presented	1,352.92	892.93	0.00	0.00	0.00	2,245.85			
	13. USER COSTS FOR ONE REPORT	(Add totals in Column f)								2,935.89
	14. ANNUAL USER COSTS	(Costs for one report multiplied by frequency per year)								2,936.54
NOTE: (Estimates of reporting costs should be prepared in accordance with GUIDE TO ESTIMATING REPORTING COSTS which is issued by GSA/NARS/NR)										

OPTIONAL FORM 101 (EG)  
FEBRUARY 1974  
GENERAL SERVICES ADMINISTRATION  
Designed using Perform Pro, WHS/OOR, Sep 95

Figure C7.F1. OF 101, "Summary Worksheet for Estimating Reporting Costs" - Sample